

REMARKS

Applicant has received and carefully reviewed the Office Action of the Examiner mailed April 4, 2008. Currently, claims 1-9 and 12-26 remain pending. Claims 1-9, 11-16, and 18-26 have been rejected. With this paper, claims 1, 3, 8, and 11 have been amended. Support for the amendments may be found in the specification, claims and drawings as filed. No new matter has been added. Favorable consideration of the following remarks is respectfully requested.

Applicant respectfully traverses the Examiner's rejection of claims 1, 6, 11-12, and 20 under 35 U.S.C. §103(a) as unpatentable over Van den Brink et al. (US 6,668,718) in view of Kondo (US 5,075,700). Claim 1 has been amended to read:

1. A printing machine for printing a substrate in the form of a sheet or continuous web, said substrate being intended to receive at least one impression, comprising at least one transfer system for conveying the substrate onto an impression cylinder, at least one screen of cylindrical or flat shape equipped with a doctor blade, the screen collaborating with the impression cylinder and intended to print the substrate by screen-printing with an optically variable ink containing pigments that can be orientated by a magnetic field and an unloading system for carrying the substrate away after the printing operation, wherein said impression cylinder comprises at least one magnetic element on its printing surface, said magnetic element being placed at a location corresponding to said impression on said substrate performed by said screen so as to orientate the pigments contained in the optically variable ink and create a varying optical effect in said impression.

As can be seen, claim 1 (and hence claim 6 depending therefrom) pertains to a printing machine that is configured to print with an optically variable ink that includes pigments that can be oriented by a magnetic field. The printing machine includes a magnetic element on a printing surface of an impression cylinder. The magnetic element is disposed at a location that permits the magnetic element to orient the pigments within the optically variable ink in order to create a varying optical effect. Neither reference, either separately or in combination, discloses or suggests these features of the claimed invention.

In the Action, the Examiner has acknowledged that Van den Brink et al. do not disclose inclusion of a doctor blade, an ink containing pigments that can be orientated by a magnetic field or that the impression cylinder includes at least one magnetic element on its printing surface. The Examiner has also acknowledged that Van den Brink et al. do not disclose an optically

variable ink or that the magnetic element is placed at a location appropriate to orientate the pigments contained in the optically variable ink and create a varying optical effect in said impression.

The Examiner relies upon Kondo to provide the elements missing from Van den Brink et al. In particular, the Examiner states at page 3 of the Office Action:

Kondo teaches in Fig. 2 and in column 2 lines 9 – 23 and column 3 lines 48 – 51: the screen (13) is equipped with a doctor blade (16), an ink (21c) is containing pigments (magnetic powder in column 1 line 61) that can be orientated by a magnetic field (magnetic lines in column 3 line 54) and said impression cylinder (18) comprises at least one magnetic element (18a) on its printing surface, said magnetic element (18a) being placed at a location corresponding to said impression on said substrate (17) performed by said screen (13).

Nevertheless, Kondo does not disclose the elements missing from the primary reference. Instead, Kondo discloses a magnetic recording device having a movable body 13 including a circular tubular substrate 12 having a magnetic layer 11 provided on its surface (see Figure 1). A predetermined magnetic pattern is written on the magnetic layer 11 by a write head 14 so as to form a magnetic image which is brought in contact with magnetic fluid 21a contained in a tank 22. As a result, the magnetic fluid 21a adheres to the surface of the movable body 13 only on the part where the magnetic image has been formed by the write head 14 (see column 3, lines 34 to 48). The pattern of the magnetic fluid 21c adhered to the surface of the movable body 13 is transferred by a transcription roller 18 to the recording medium 17 that is transported between the transcription roller 18 and the movable body 13 (see Figure 2 and column 3, lines 48 to 52). The transcription roller 18 includes a fixed magnet 18a that does not rotate and a surrounding sleeve 18b that rotates (see Figure 2 and column 2, lines 15 to 26). The magnetic force acts between the magnetic fluid 21c adhering to the surface of the movably body 13 and the fixed magnet 18a of the transcription roller 18, resulting in the magnetic fluid 21c being strongly attracted to the N pole 18c of the fixed magnet 18a, which completely coagulates onto the recording medium (see column 3, lines 52 to 58).

It will be appreciated that Kondo discloses the use of a fluid that is magnetic to carry out the impression as described above. Kondo does not disclose the use of an optically variable ink containing pigments that can be orientated by a magnetic field. Kondo furthermore fails to disclose a process involving the orientation of pigments contained in the ink using a magnetic

element. According to Kondo, the magnetic fluid is attracted by the transcription roller 18 to be drawn away from the surface of the movably body 13 and be transferred onto the substrate 17. While the magnetic field produced by the magnetic element of Kondo may perform the impression of the pattern, Kondo does not describe or suggest carrying out an orientation of pigments contained in the ink. The resulting impression of Kondo is devoid of any varying optical effect that would be created by an orientation of pigments contained in the ink as currently claimed.

Thus, even if one were to combine Van den Brink et al. and Kondo, one would not arrive at the claimed invention as neither reference, either separately or in combination, discloses or suggests a printing machine that is configured to print with an optically variable ink that includes pigments that can be oriented by a magnetic element that is disposed at a location that permits the magnetic element to orient the pigments within the optically variable ink in order to create a varying optical effect. These are claimed features expressly absent from both references. Applicant does not concede the obviousness of combining these two references.

Turning now to claim 11, the claim has been amended to read:

11. A method of screen-printing a substrate in the form of a sheet or web, in which an impression is formed using an optically variable ink containing pigments that can be orientated by a magnetic field, said impression being formed by passing said substrate in contact with an impression cylinder with which there collaborates at least one screen of cylindrical or flat shape equipped with a doctor blade for screen-printing said optically variable ink, wherein said impression is subjected to a magnetic field before it dries so as to orientate said pigments and create a varying optical effect in said screen-printed impression.

It can be seen that claim 11 (and hence claims 12 and 20 depending therefrom) pertains to a method of screen-printing using an optically variable ink that includes pigments that can be oriented by a magnetic field. The impression that is formed using the optically variable ink is subjected to a magnetic field before it dries in order to orient the pigments and thus create a varying optical effect in the impression.

As discussed above with respect to independent claim 1, neither reference is believed to describe or suggest printing with an optically variable ink that includes magnetically-orientable pigments. Moreover, neither Van den Brink et al. nor Kondo disclose subjecting an impression

created by optically variable ink to a magnetic field before it dries so as to orientate the pigments and create a varying optical effect in the screen-printed impression.

Thus, even if one were to combine Van den Brink et al. and Kondo, one would not arrive at the device as claimed. Furthermore, there is no motivation for one of ordinary skill in the art to modify Van den Brink et al. or Kondo to achieve the device as claimed. Favorable reconsideration is respectfully requested.

Applicant respectfully traverses the Examiner's rejection of claims 2, 7, 13-16, and 21 under 35 U.S.C. §103(a) as unpatentable over Van den Brink et al. (US 6,668,718) in view of Kondo (US 5,075,700), and further in view of Pearce (US 4,186,944). Claims 1 and 11, from which claims 2, 7, 13-16 and 21 depend, respectively, are distinguished above as being patentable over Van den Brink et al. and Kondo. Pearce is not believed to remedy the noted shortcomings of the other two references, and thus claims 1 and 11 are believed to be patentable over all three references. Claims 2, 7, 13-16 and 21 include the elements of claims 1 and 11, respectively, and thus are patentable for at least the same reasons. These claims also add further distinguishing features. Favorable reconsideration is respectfully requested.

Applicant respectfully traverses the Examiner's rejection of claims 3-5, 8-9, 19, 22, and 24-26 under 35 U.S.C. §103(a) as unpatentable over Van den Brink et al. (US 6,668,718) in view of Kondo (US 5,075,700) and further in view of Arahara et al. (US 5,151,712).

Independent claim 3, as amended, recites:

3. A printing machine for printing a substrate in the form of a sheet or continuous web, said substrate being intended to receive at least one impression, comprising at least one transfer system for conveying the substrate onto an impression cylinder, at least one screen of cylindrical or flat shape equipped with a doctor blade, the screen collaborating with the impression cylinder and intended to print the substrate by screen-printing with an optically variable ink containing pigments that can be orientated by a magnetic field and an unloading system for carrying the substrate away after the printing operation, **wherein the unloading system comprises a cylinder having at least one magnetic element on its surface**, said magnetic element being placed at a location corresponding to said impression on said substrate performed by said screen so as to orientate the pigments contained in the optically variable ink and create a varying optical effect in said impression. (Emphasis added.)

As can be seen, claim 3 (and hence claims 4-5, 22 and 25-26 depending therefrom) pertains to a printing machine that includes, among other elements, an unloading system that includes a cylinder having at least one magnetic element on its surface. The magnetic element is located at a position that enables the magnetic element to orientate the pigments that are within an optically variable ink in order to create a varying optical effect. None of the references, either separately or in combination, disclose or suggest these claimed features.

The Examiner admits in the Office Action that neither Van den Brink et al. nor Kondo disclose the claimed unloading system, and thus relies upon Arahara et al. to provide the missing elements. In particular, the Examiner states:

Arahara et al. disclose in Fig. 4 and column 13 lines 34 – 47: the unloading system (52, 8 and 9) comprises a cylinder (52) having at least one element (supplied by 105) on its surface, said element being placed at a location corresponding to said impression (201) on said substrate (10) performed by said screen (1).

It appears that the Examiner has misinterpreted and/or misapplied the cited reference. At column 13, lines 34-47 Arahara et al. actual disclose:

Incidentally, while the printing plate 4 is a cathode and the ink-carrying roller 1, and auxiliary rollers 51 and 52 are anodes in FIG. 4, but the printing plate 4 may be an anode and the ink-carrying roller 1, and auxiliary rollers 51 and 52 may be cathodes depending on the property or state of an ink used in combination therewith. In another embodiment, it is sufficient to dispose one auxiliary roller. In still another embodiment, three or more auxiliary rollers may be provided.

In the present invention, it is preferred that the voltage from the power supplies 103, 104 and 105 is applied between the rotation axis of the plate roller 3, and those of the ink-carrying roller 1, and auxiliary rollers 51 and 52.

It can be seen that Arahara et al. describe using voltage (and electrodes) to transfer a viscous substance. The electrical system described by the reference is not equivalent to the claimed structure. Thus, one of skill in the art will recognize that Arahara et al. do not disclose an unloading system comprising a cylinder having at least one magnetic element on its surface. Arahara et al. do not describe or suggest placing the magnetic element at a location that enables the magnetic element to orientate the pigments within an optically variable ink in order to create a varying optical effect.

Thus, even if one were to combine Arahara et al., Van den Brink et al. and Kondo, one would not arrive at the device as claimed. Furthermore, there is no motivation for one of ordinary skill in the art to modify Arahara et al., Van den Brink et al. or Kondo to achieve the device as claimed. Reconsideration and withdrawal of the rejection are respectfully requested. Applicant submits that claims 4-5, 22, and 25-26 are also in condition for allowance as they depend from claim 3 and add significant limitations to further distinguish them from the prior art.

Independent claim 8, as amended, recites:

8. A cylinder for printing or transferring a substrate in the form of a sheet or continuous web, said substrate being intended to receive at least one screen-printed impression with an optically variable ink containing pigments that can be orientated by a magnetic field, which cylinder comprises at least one magnetic element on its surface to orientate the pigments of said optically variable ink and create a varying optically effect in said screen-printed impression, and wherein said at least one magnetic element is covered by a sheet of non-magnetic material.

For at least the reasons discussed above with respect to independent claims 1 and 11 neither Van den Brink et al., Kondo nor Arahara et al. disclose an optically variable ink containing pigments that can be orientated by a magnetic field. Further, none of the cited references describe or suggest including at least one magnetic element on the surface of the cylinder to orientate the pigments of the optically variable ink and create a varying optically effect in a screen-printed impression. Moreover, none of the references are believed to describe or suggest covering the at least one magnetic element with a sheet of non-magnetic material.

Thus, even if one were to combine Arahara et al., Van den Brink et al. and Kondo, one would not arrive at the device as claimed. Furthermore, there is no motivation for one of ordinary skill in the art to modify Arahara et al., Van den Brink et al. or Kondo to achieve the device as claimed. Reconsideration and withdrawal of the rejection are respectfully requested. Applicant submits that claim 9 is also in condition for allowance as it depends from claim 8 and adds significant limitations to further distinguish it from the prior art.

For at least the reasons set forth above, the combination of Van den Brink et al. and Kondo does not disclose or suggest every element of independent claim 1 from which claims 19 and 24 depend. Arahara et al. appear to disclose what Van den Brink et al. and Kondo lack. Thus, even if one were to combine Arahara et al., Van den Brink et al. and Kondo, one would not

arrive at the device as claimed. Furthermore, there is no motivation for one of ordinary skill in the art to modify Arahara et al., Van den Brink et al. or Kondo to achieve the device as claimed. Reconsideration and withdrawal of the rejection are respectfully requested.

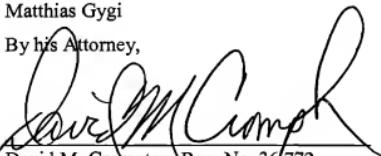
Applicant respectfully traverses the Examiner's rejection of claims 18 and 23 under 35 U.S.C. §103(a) as unpatentable over Van den Brink et al. (US 6,668,718), Kondo (US 5,075,700), and Arahara et al. (US 5,151,712), and further in view of Pearce (US 4,186,944). Claims 3 and 8, from which claims 18 and 23 depend, are distinguished above as patentable over Van den Brink et al., Kondo and Arahara et al. Pearce is not believed to remedy the noted shortcomings of the other three references, and thus claims 3 and 8 are believed to be patentable over all four references. Claims 18 and 23 include the limitations of claims 3 and 8, and thus are patentable for at least the same reasons. Claims 18 and 23 also add further distinguishing features. Favorable reconsideration is respectfully requested.

Reexamination and reconsideration are respectfully requested. It is respectfully submitted that all pending claims are now in condition for allowance. Issuance of a Notice of Allowance in due course is requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 677-9050.

Respectfully submitted,

Matthias Gygi

By his Attorney,



David M. Crompton, Reg. No. 36,772
CROMPTON, SEAGER & TUFTE, LLC
1221 Nicollet Avenue, Suite 800
Minneapolis, MN 55403-2420
Telephone: (612) 677-9050
Facsimile: (612) 359-9349

Date: 7/2/08